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09/866,180	05/25/2001	Isao Matsumoto	13041.14US01	4591

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EXAMINER

RUTHKOSKY, MARK

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 06/24/2003

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8/18/03

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/866,180

Applicant(s)

MATSUMOTO, ISAO

Examiner

Mark Ruthkosky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-7 is/are allowed.
- 6) ☐ Claim(s) 1-3 and 8-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 25 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement filed 8/27/2001 has been placed in the application file, and the information referred to therein has been considered as to the merits.

Drawings

The drawings filed on 5/25/2001 have been approved.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "said battery case" in claim 8. There is insufficient antecedent basis for this limitation in the claim.

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Claim 11 recites the limitations "the adjacent battery terminal" and "the neighboring battery case" in claim 9. There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Kitoh et al.

(US 6,258,487 B1.)

The instant claims are to spiral-rolled electrodes for batteries having a concentric circle shape or elliptical shape including a positive electrode, a negative electrode and a separator there between. The positive and/or negative electrode comprises a combination of plural electrode plates. Each combination of plates has a substantially constant amount of active or pseudo active material. Each electrode plate in the electrode is wound in series with an interval between each plate.

Kitoh et al. (US 6,258,487 B1) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between. The

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combination of plates has a substantially constant amount of active or pseudo active material as one electrode is prepared and divided into equivalent sections. Thus, the claims are anticipated.

Claims 1-2 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagura et al. (US 5,534,369.)

Nagura et al. (US 5,534,369) teaches a battery including spiral-rolled electrodes with a divided electrode base plate. The battery has a concentric circle shape or elliptical shape and includes a positive electrode, a negative electrode and a separator there between (see col. 5 and figures 4-7.) The combination of plates has a substantially constant amount of active or pseudo active material as the electrodes are uniformly prepared and divided into equivalent sections (col. 4, line 50 – col. 5, line 30.) Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitoh et al. (US 6,258,487 B1) OR Nagura et al. (US 5,534,369) as applied above, and further in view of Nakai et al. (JP 60-180,058.)

Kitoh et al. (US 6,258,487 B1) and Nagura et al. (US 5,534,369) teach a battery including spiral-rolled electrodes with a divided electrode base plate as previously described. The references are silent to the dimensions of the sidewalls and bottom of the battery case. Nakai et

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al. (JP 60-180,058, abstract), however, teaches a cylindrical battery container wherein the thickness of the sidewalls of the case is made to be more thin than the thickness of the bottom of the container. The ratio of the thickness of the bottom to the sidewalls is greater than 1.5. The thicker part is at the border of the sidewall and the case as well as along the entire bottom of the case. It would be obvious to one of ordinary skill in the art at the time the invention was made to make the thickness of the side-walls of the case of Kito et al. (US 6,258,487 B1) OR Nagura et al. (US 5,534,369) to be more thin than the thickness of the bottom of the container in a ratio of greater than 1.5. The resultant can allow for a durable casing and will improve the battery characteristics by increasing the inner diameter and volume of the can thus allowing for more active material and a higher capacity. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

With regard to claim 11, the reference does not teach a battery wherein the adjacent positive terminal of the battery is welded by a metallic connector to the bottom of the adjacent battery case. Connecting batteries in series is broadly known in the art to increase the voltage of a battery. It would be obvious to one of ordinary skill in the art at the time the invention was made to weld a connector between two adjacent batteries in order to allow for a connection in series. Welding the connector will provide a secure connection to the terminals, which will allow for the transfer of electrons.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagura et al. (US 5,534,369) as applied above, and further in view of Kaido et al. (EP 814,525.)

Nagura et al. (US 5,534,369) teaches a battery including spiral-rolled electrodes with a divided electrode base plate as previously described. The reference teaches a metal foil area

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without active material along the edge of one side in the cylindrical direction. Nagura et al. (US 5,534,369) does not teach the foil area without active material along the edge of one side in the winding direction. Kaido et al. (EP 814,525) teaches an electrode plate for a non-aqueous electrolyte battery. The plate includes a conductive plate with an active material coated onto sections of the plate in a manner to leave an uncoated area along an edge of the plate and at predetermined intervals in a winding direction (claims 25-34 and the figures.) The uncoated edge area is used to attach a conductive tab plate in order to transfer charge. It would be obvious to one of ordinary skill in the art at the time the invention was made to prepare an electrode plate with an exposed edge in a winding direction. As the electrode plate is wound, the exposed area will provide a means for attaching a conductive tab to the electrode and transfer the charge to the terminal of the battery as taught in Kaido et al. (EP 814,525; page 3, lines 20-30 and 50-60.) As Nagura et al. (US 5,534,369) teaches a battery including spiral-rolled electrodes that are separated, one of ordinary skill in the art would recognize from the teachings of Kaido et al. (EP 814,525) that exposing an edge of the plate in the rolled direction will allow for the attachment of a tab to each segment and a means to transfer charge from the battery. The examiner would have found the claimed invention to be obvious in light of the teachings of the references.

Allowable Subject Matter

Claims 4-8 are allowed.

The following is an examiner's statement of reasons for allowance:

The instant claims are to spiral-rolled electrodes for batteries having a concentric circle shape or elliptical shape including a thin nickel positive electrode, a thin metal hydride negative

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electrode and a separator wound in between. The positive and negative electrodes comprise a combination of plural electrode plates wound in series in order. Each combination of plates has a substantially constant amount of active or pseudo active material. Each electrode plate in the electrode is wound in series with an interval between each plate. The thickness of the electrode at the side where the winding starts is thinner than the thickness of the electrode at the side where the winding ends. The prior art does not teach a nickel metal hydride battery where the positive and negative electrodes comprises a combination of plural electrode plates wound in series in order; each electrode plate in the electrode is wound in series with an interval between each plate; and thickness of the electrode at the side where the winding starts is thinner than the thickness of the electrode at the side where the winding ends.

Wound batteries with separated electrode plates are well described in the art as noted by Kito et al. (US 6,258,487 B1) and Nagura et al. (US 5,534,369) as applied. The references do not teach batteries including a thin nickel positive electrode, a thin metal hydride negative electrode and a separator wound in between or that the thickness of the electrode at the side where the winding starts is thinner than the thickness of the electrode at the side where the winding ends. As such, the claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Examiner Correspondence

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 703-305-0587. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:00.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 703-308-2383.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Mark Ruthkosky

Patent Examiner

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Mark Ruthkosky
6/16/03